ABSTRACT

1   In a multiprocessor computer system with multiple nodes, a static end to end retry
2   apparatus and method uses the concept of sequence numbers combined with a path
3   number. All transactions sent along a path are delivered in order to remove any time
4   dependency. The apparatus and method ensure there are no duplicate transactions
5   through the use of special probe and plunge transactions and their respective responses.
6   The apparatus and method also allow for any number of alternate paths being active
7   simultaneously, such that if one path fails, the remaining alternate paths can continue on
8   the communication (along with the backup alternate path if desired) as usual without any
9   loss of transactions. Each node keeps track of transactions the node has sent over time to
10   every other node, as well as every transaction the node has received from every other
11   node along each active path for each flow control class. To accomplish this tracking
12   function, two data structures exist. A send_seqid, representing the sequence identification
13   (ID) (or sequence number) for the last transaction sent by the sending (or source) node to
14   a given destination node exists along any given active path, and a flow control class. A
15   second structure is a receive_seqid, representing the sequence ID (sequence number) of
16   the last transaction that a destination node received and for which the destination node
17   sent an acknowledgement (ACK) back to the source node, for each node, along every
18   active path, and for each flow control class. The send_seqid and the receive_seqid may
19   be stored in send_seqid and receive_seqid tables at each node in the multiprocessor
20   computer system.

HP 10019694-1